What is claimed is:

1. A purified and isolated nucleic acid molecule capable of directing transcription of operably linked sequences consistent with CA125/M17S2 expression.

2. The isolated nucleic acid molecule of claim 1, wherein the isolated nucleic acid molecule comprises SEQ ID NO:1.

3. An isolated nucleic acid molecule having promoter activity comprising a polynucleotide selected from the group consisting of:

(a) the polynucleotide of SEQ ID NO:1;

(b) a polynucleotide having at least 90% identity to the polynucleotide of SEQ ID NO:1; and

(c) a polynucleotide having the SEQ ID NO 1 and extending 1000 nucleotides upstream into the genomic sequence of human chromosome 17 and containing additional transcriptional regulatory elements that control the gene expression of CA125/M17S2 gene in a positive or negative way.

(d) a polynucleotide complementary to a polynucleotide of (a) through (c).

4. The isolated nucleic acid molecule of claim 3, wherein the polynucleotide is the polynucleotide of SEQ ID NO:1.

5. A nucleic acid construct having ovarian cancer cell specific promoter activity comprising a first polynucleotide operably linked to a second polynucleotide, wherein the first polynucleotide is selected from the group consisting of:

(a) the polynucleotide of SEQ ID NO:1;

(b) a polynucleotide having at least 90% identity to the polynucleotide of SEQ ID NO:1; and

(c) a polynucleotide having the SEQ ID NO 1 and extending 1000 nucleotides upstream into the genomic sequence of human chromosome 17 and containing additional transcriptional regulatory elements that control the gene expression of CA125/M17S2 gene in a positive or negative way.

(d) a polynucleotide complementary to a polynucleotide of (a) through (c); and

a second polynucleotide sequence the expression of which is desired in a host cell.

6. The nucleic acid construct of claim 5, wherein the first polynucleotide is the polynucleotide of SEQ ID NO:1.

7. The nucleic acid construct of claim 5, wherein the second polynucleotide is selected from the group consisting of a reporter gene, a viral gene and a therapeutic gene.

8. A vector comprising a nucleic acid construct, wherein the nucleic acid construct comprises a first polynucleotide operably linked to a second polynucleotide, wherein the first polynucleotide is selected from the group consisting of:

(a) the polynucleotide of SEQ ID NO:1;

(b) a polynucleotide having at least 90% identity to the polynucleotide of SEQ ID NO:1; and

(c) a polynucleotide having the SEQ ID NO 1 and extending 1000 nucleotides upstream into the genomic sequence of human chromosome 17 and containing

additional transcriptional regulatory elements that control the gene expression of CA125/M17S2 gene in a positive or negative way.

(d) a polynucleotide complementary to a polynucleotide of (a) through (c); and

the second polynucleotide is a sequence, the expression of which is desired in a host cell.

9. The vector of claim 8, wherein the first polynucleotide is the polynucleotide of SEQ ID NO:1.

10. The vector of claim 8, wherein the second polynucleotide is selected from the group consisting of a reporter gene, a viral gene and a therapeutic gene.

11. The vector of claim 8, wherein the vector is a viral vector.

12. The vector of claim 11, wherein the viral vector is selected from the group consisting of a retroviral vector, an adenoviral vector, and an adeno-associated viral vector.

13. A host cell comprising a vector, wherein the vector comprises a nucleic acid construct having promoter activity, wherein the nucleic acid construct comprises a first polynucleotide operably linked to a second polynucleotide, wherein the first polynucleotide is selected from the group consisting of:

(a) the polynucleotide of SEQ ID NO:1;

(b) a polynucleotide having at least 90% identity to the polynucleotide of SEQ ID NO:1; and

(c) a polynucleotide having the SEQ ID NO 1 and extending 1000 nucleotides upstream into the genomic sequence of human chromosome 17 and containing additional transcriptional regulatory elements that control the gene expression of CA125/M17S2 gene in a positive or negative way.

(d) a polynucleotide complementary to a polynucleotide of (a) through (c); and said second polynucleotide is a sequence the transcription of which is desired in a host cell.

14. The host cell of claim 13, wherein the first polynucleotide is the polynucleotide of SEQ ID NO:1.

15. The host cell of claim 13, wherein the second polynucleotide is selected from the group consisting of a reporter gene and a therapeutic gene.

16. The host cell of claim 13, wherein the vector is a viral vector.

17. The host cell of claim 16, wherein the viral vector is selected from the group consisting of a retroviral vector, a herpes simplex vector, an adenoviral vector, and an adeno-associated viral vector.

18. A isolated nucleic acid molecule having CA125/M17S2 promoter activity in ovarian cancer cells, wherein the nucleotide positions between 390 and 521 of SEQ ID NO:1 contains a cis-element.

19. The isolated nucleic acid of claim 18, wherein the cis-element is capable of down regulating expression.

20. An isolated nucleic acid molecule capable of inducing transcription of operable linked sequences in an ovarian cancer cell comprising a polynucleotide having at least 90% identity to the polynucleotide of SEQ ID NO:1, wherein the nucleotide positions between 390 and 521 of SEQ ID NO:1 contains a cis-element.

21. The isolated nucleic acid of claim 20, wherein the cis-element is capable of down regulating expression.

22. A method of providing a nucleotide sequence to treat ovarian cancer, the method comprising:

administering to a subject a nucleic acid construct comprising a therapeutic gene under the control of a CA125/M17S2 promoter, wherein the nucleotide sequence of said promoter is set forth in SEQ ID NO:1, such that the construct is effective in treating ovarian cancer.

23. The method of claim 23, wherein the subject is human.